

Appl. No. 09/548,518
Amtd. Dated 10 May 2004
Reply to Office Action of 10 Feb., 2004

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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): ~~Spacer frame tubing for being mounted between first and second glass panes in an~~ An insulated window assembly, said tubing comprising:

first and second glass panes; and

spacer frame tubing mounted between said first and second glass panes, said spacer frame tubing comprising:

first and second sidewall portions for engaging inner surfaces of said glass panes; and

a transverse wall portion interconnecting said sidewall portions so as to support said sidewall portions in spaced-apart relationship, said transverse wall portion being configured to permit said sidewall portions to move alternately towards and away from one another in response to inwardly and outwardly directed forces exerted by said glass panes so as to minimize development of a pivoting action between said inner surfaces of said panes and said sidewall portions of said spacer frame tubing.

Claim 2 (currently amended): ~~The spacer frame tubing of claim 1, wherein~~ Spacer frame tubing for being mounted between first and second glass panes in an insulated window assembly, said tubing comprising:

first and second sidewall portions for engaging inner surfaces of said glass panes; and

a transverse wall portion interconnecting said sidewall portions so as to support said sidewall portions in spaced-apart relationship, said transverse wall portion being configured to permit said sidewall portions to move alternately towards and away from one another in response to inwardly and outwardly directed forces exerted by said glass panes so as to minimize development of a pivoting action between said inner surfaces of said panes and said sidewall portions of said spacer frame tubing; transverse wall portion of said tubing comprises: comprising at least first and second web portions which extend from said sidewall portions and which

seam structure, said seam structure being configured to permit said web portions to move alternately towards and away from one another in response to said inwardly and outwardly directed forces exerted by said glass panes in said assembly.

Claim 3 (original): The spacer frame tubing of claim 2, wherein said seam structure comprises:

a plurality of tab portions formed on edges of said first and second web portions, said tab portions on said first web portion forming a sliding interfit with said tab portions on said second web portion so as to permit said web portions to move alternately towards and away from one another.

Claim 4 (original): The spacer frame tubing of claim 3, wherein said tab portions on said edge of said first web portion alternately overlap and underlap said tab portions on said edge of said second web portion in sliding interfit therewith.

Claim 5 (original): The spacer frame tubing of claim 4, wherein said overlapping and underlapping tab portions meet along planar engagement surfaces which extend generally parallel to said first and second web portions.

Claim 6 (original): The spacer frame tubing of claim 5, wherein said first and second web portions extend in generally co-planar relationship.

Claim 7 (original): The spacer frame tubing of claim 6, wherein said tab portions on each said edge of said web portions comprise alternating upper and lower tab portions, said upper tab portions extending in generally co-planar relationship with said web portion and said lower tab portions bending downwardly from base portions at which said lower tab portions are joined to said web portions.

Claim 8 (original): The spacer frame tubing of claim 7, wherein each of said tab portions comprises a substantially rectangular outer end.

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Claim 9 (original): The spacer frame tubing of claim 8, wherein said base portions of said lower tab portions are positioned a spaced distance from said juxtapositioned outer ends of said upper top portions so as to form a gap for permitting said ends of said upper tab portions to move towards said bases of said lower tab portions as said first and second web portions move towards one another.

Claim 10 (original): The spacer frame tubing of claim 8, wherein said rectangular outer ends of said upper and lower tab portions each comprise:

first and second edge faces for engaging corresponding edge faces on outer ends of adjoining tab portions in sliding interfit therewith.

Claim 11 (original): The spacer frame tubing of claim 2, further comprising:

a second transverse wall portion, so that said sidewall portions and said transverse wall portions cooperate to define a hollow interior of said tubing.

Claim 12 (original): The spacer frame tubing of claim 11, further comprising:

a particulate desiccant material disposed within said hollow interior of said tubing.

Claim 13 (original): The spacer frame tubing of claim 11, wherein said tubing has a generally rectangular cross-section.

Claim 14 (original): The spacer frame tubing of claim 13, further comprising:

at least one projecting rib formed on each said sidewall portion of said tubing for limiting engagement with said inner surfaces of said glass panes to line-contact engagement therewith.

Claim 15 (original): The spacer frame tubing of claim 14, wherein said projecting ribs on said sidewall portions are formed proximate said transverse wall portion having said seam structure formed therein.

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Claim 16 (original): The spacer frame tubing of claim 2, wherein said tubing is constructed of roll-formed sheet aluminum alloy material.

Claim 17 (original): The spacer frame tubing of claim 6, wherein said tubing is constructed of roll-formed sheet aluminum alloy material.

Claim 18 (currently amended): An insulated window assembly, comprising:

first and second glass panes having inner surfaces; and

spacer frame tubing mounted between said first and second glass panes, said tubing comprising:

first and second sidewall portions ~~for engaging~~ mounted in engagement with inner surfaces of said glass panes; and

a transverse wall portion interconnecting said sidewall portions so as to support said sidewall portions in spaced-apart relationship, said transverse wall portion being configured to permit said sidewall portions to move alternately towards and away from one another in response to inwardly and outwardly directed forces exerted by said glass panes so as to minimize development of a pivoting action between said inner surfaces of said panes and said sidewall portions of said spacer frame tubing.

Claim 19 (original): The insulated window assembly of claim 18, wherein said transverse wall portion of said spacer frame tubing comprises:

at least first and second web portions which extend from said sidewall portions and which are joined by a seam structure, said seam structure being configured to permit said web portions to move alternately towards and away from one another in response to said inwardly and outwardly directed forces exerted by said glass panes in said assembly.

Claim 20 (original): The insulated window assembly of claim 19, wherein said seam structure comprises:

a plurality of tab portions formed on edges of said first and second web portions, said tab portions on said first web portion forming a sliding interfit with

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said tab portions on said second web portion so as to permit said web portions to move alternately towards and away from one another.

Claim 21 (original): The insulated window of claim 20, wherein said tab portions on said edge of said first web portion alternately overlap and underlap said tab portions on said edge of said second web portion in sliding interfit therewith.

Claim 22 (original): The insulated window assembly of claim 21, wherein said overlapping and underlapping tab portions meet along planar engagement surfaces which extend generally parallel to said first and second web portions.

Claim 23 (original): The insulated window assembly of claim 22, wherein said first and second web portions extend in generally co-planar relationship.

Claim 24 (original): The insulated window assembly of claim 23, wherein said tab portions on each said edge of said web portions comprise alternating upper and lower tab portions, said upper tab portions extending in generally co-planar relationship with said web portion and said lower tab portions bending downwardly from base portions at which said lower tab portions are joined to said web portions.

Claim 25 (original): The insulated window assembly of claim 24, wherein each of said tab portions comprises a substantially rectangular outer end.

Claim 26 (original): The insulated window assembly of claim 25, wherein said base portions of said lower tab portions are positioned a spaced distance from juxtapositioned outer ends of said upper tab portions so as to form a gap for permitting said ends of said upper tab portions to move towards said bases of said lower tab portions as said first and second web portions move towards one another.

Claim 27 (original): The insulated window assembly of claim 26, wherein said rectangular outer ends of said upper and lower tab portions each comprise:

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first and second edge faces for engaging corresponding edge faces on outer ends of adjoining tab portions in sliding interfit therewith.

Claim 28 (original): The insulated window assembly of claim 19, wherein said tubing has a generally rectangular cross-section.

Claim 29 (original): The insulated window assembly of claim 28, further comprising:
at least one projecting rib formed on each said sidewall portion of said tubing for limiting engagement with said inner surfaces of said glass panes to line-contact engagement therewith.

Claim 30 (original): The insulated window assembly of claim 29, wherein said projecting ribs on said sidewall portions are formed proximate said transverse wall portion having said seam structure formed therein.

Claim 31 (original): The insulated window assembly of claim 18, wherein said tubing is constructed of roll-formed sheet aluminum alloy material.

Claim 32 (original): The insulated window assembly of claim 18, wherein said spacer frame tubing is mounted between outer edges of said glass panes proximate a perimeter of said assembly, said inward forces exerted against said sidewall portions of said tubing are being caused by inward bowing of said glass panes in response to an increase in atmospheric pressure, and said outward forces exerted against said sidewall portions of said tubing being caused by outward bowing of said glass panes in response to a decrease in atmospheric pressure.

Claim 33 (original): The insulated window assembly of claim 32, further comprising: a sealing strip mounted between said outer edges of said glass panes outside of said spacer frame tubing.

Claim 34 (previously added): The spacer frame tubing of claim 4, wherein said overlapping tab portions are spaced apart so as to form an open gap that permits said tab portions on said first and second web portions to slide laterally relative to one another.

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Claim 35 (previously added): The insulated window of claim 21, wherein said overlapping tab portions are spaced apart so as to form an open gap that permits said tab portions on said first and second web portions to slide laterally relative to one another.